

CHAMBERS'S JOURNAL

OF

POPULAR

LITERATURE, SCIENCE, AND ART.

Fourth Series

CONDUCTED BY WILLIAM AND ROBERT CHAMBERS.

No. 40.

SATURDAY, OCTOBER 1, 1864.

PRICE 1*½*d.

AFTER THEIR TIME.

As there have been great men who are said to have been born before their time, such as Huss and Copernicus, so there are persons now-a-days, also great men in their way, whose arrival on this planet seems to have been due these thousand years ; people who would have shone brightly enough in the darkness of barbarism, but whose undoubted natural talents have been nullified, because anticipated by Civilisation. If the world were suddenly to be deprived of all the long results of time in the arts and sciences, these individuals would be hailed with acclamation, as pioneers of progress ; but since everything they can think of has not only been thought of before, but put in practice, and brought to a high pitch of perfection, they might just as well, for that matter, have had no ideas at all. Thus, who does not reckon among his acquaintances men who are born with a genius for making steam-engines, or frying omelets, or carving walnut-wood, or who have a turn for some other ingenious invention, perfectly original as respects themselves, but which has unhappily been anticipated by somebody else, two or three centuries, or it may be only a few years, before. It does not signify how long before. A man, for instance, with a natural genius for dividing England into shires and counties, might just as well be born to-day (and very likely has been), as at any period since King Alfred got the thing 'ventilated,' and its merits acknowledged. He has arrived after his time. I know a clergyman who can make shoes almost as well as any shoemaker who has been apprenticed to the trade : now, surely this is a remarkable gift, and in nowise less admirable because it also happens to be a fact, that almost any shoemaker could write a better sermon. If this Divine had lived before the days of St Crispin, would he not have been a very King of the Cobblers ? He would then, too, perhaps, have had less temptation to go beyond his last, which, I am sorry to say, he now does. 'Lastly,' says he, and those who are not acquainted with his preaching, fondly imagine that he is about to finish ; but

the discourse goes on, with a 'To sum up briefly, then, my friends,' and a 'To conclude'—a very hydra-headed homily.

Again, I know a young lieutenant in the navy, who has such a talent for intricate machinery that he has made a watch which actually 'goes,' if it does not keep very exact time : this peculiar excellence of his is absolutely valueless, which, if he had been born in the days of water-clocks, would have given him Fame and Fortune ; and, in other respects, it unfortunately happens that he is a Fool. This is but too often the case with persons of this kind—men with one ingenious idea. And alas ! if even that has been anticipated ! Where they really do shine, and meet with abundant honour and acceptance, is during their boyhood. As children, of course, their parents are delighted with them ; proud, beyond measure, of the Infant Prodigy, who can construct railways on the nursery-floor ; or of the home-grown genius who can cure the garden-engine of that complaint in its throat which prevented it from performing its functions. At school, too, they are received with rapture, just as a ship-carpenter would be considered a heaven-born wonder among savages.

I remember several such curious creatures. The boy for whom we predicted the most successful future, at Dr Swishem's, could make apple-scoops—out of the knuckle-bones of something or other—in a most surprising manner. We could use them just as well as those which we gave money for in the shops. He could also produce fire out of flint-stones in combination with the tail of his shirt, which he was always tearing to pieces with that object. Yet, born in an era of lucifer-matches, what could this talent avail him ? Nay, it was a positive disadvantage. He was not only punished for destroying his linen, but for striking lights when they should not be struck, in the not unreasonable apprehension that he might burn us all in our beds ; a catastrophe which, I am bound to say, he did his ingenious best to bring about. His person used to be searched by the authorities for flints, but lights he was determined to have, and well do I remember his

flourishing, in the dark and deep night, a bottle of glow-worms in his hand, by which, when put under the clothes, one could really see to read. Not that the contriver of this happy shift ever wanted to read either at night or at any other time. I even doubt whether he *could* read. He was a hopeless, helpless dunce.

Let it not be imagined, however, that it is the object of the present writer to deprecate this class of persons. They would, I am well aware, be Men of the Time—men eminent in their generation—if they only came *at* the Time, and not *after* it; and placed in exceptional circumstances, even now, they would doubtless signalise themselves immensely. Moreover, for my own part, I admire and venerate their capabilities beyond measure, being myself without practical ingenuity of any sort—and the merest puppet of civilisation and artifice, with respect to everything that concerns our material needs. Leave me alone in an island ever so fruitful and abounding in game, and I should perish immediately; for I could never climb for cocoa-nuts, or catch an animal in a pitfall, or build a roof over my own head. As for lights, I might rub all the trees away—hard and soft—in the Tropics before I got a spark out of them; and as for getting water, unless by lying flat on my stomach, and drinking it out of a river, I should have no idea of how to set about it—where to dig, or even *how* to dig, and much less how to make a spade to dig *with*, in the first place. Yet nothing in literature pleases me better than accounts of how people do get on under circumstances of this (happily for me) exceptional kind. Mr Francis Galton, who wrote the *Art of Travel* (if a genuine enthusiasm upon my part may excuse a vulgar phrase), is the author “for my money all over the world,” or nearly so; a gentleman who, if placed a sansculotte in a forest of prickly pears, or set adrift upon the Cattegat in a washing-tub, would by no means despair of his condition. Neither he nor any of the Robinson Crusoe sort of people that I have in my mind, would be at a loss what to do, no matter in how perilous—or as *I* call it, who have only a theatrical experience of such matters—in how ‘sensational’ a position they might find themselves.

Let us suppose, for instance, that one of them, touring for his pleasure in Central Africa (a thing he is very likely to do), finds that he has ridden too far from his party, and is left behind in the desert. The sense of desolation even Mr Galton allows to be in such a case ‘almost overwhelming.’ For my part, I own, after galloping hither and thither till my horse was weary, I should probably see nothing for it but to dig a convenient hole in the sand, and thereby save my friends at home all sepulchral expenses. But my gentleman who makes apple-scoops out of knuckle-bones, is not so easily dispirited. He does nothing in haste or thoughtlessly, and yet everything that offers the best chance of success. In the first place, according to previous advice, he has in his pocket a small piece of looking-glass, and this he glitters towards the direction which he supposes his party has taken. He always used to be great as a school-boy in annoying the townsfolk generally, and especially the master’s wife, as she sat—a supposed spy upon our actions—at the second-floor window, by dazzling them with a hand-mirror, and therefore he knows how to manage this matter, which requires some practice

to do well. It is quite astonishing at how great a distance—as far, perhaps, as ten miles—its flashes will catch the sharp eyes of a Bushman who has learned to know what it is. If the sun is down, and this amusement cannot be indulged in, other methods of regaining his comrades will not be left untried. In the first place, from the moment that this Genius finds himself lost (as an Irishman would write it), he keeps a careful log, by observing and writing down the directions in which he rides, and the time and estimated distances, else he may wander away from all help. His object, if he can retrace his own tracks, is to ride in a circle until the path of the caravan is crossed. He calculates coolly how far at the utmost he can be from his party, and makes this distance the radius of his circle or ‘cast.’ then if he rides on one side, hoping to obtain some clue, and does not, he will ride back again in a sloping direction, and regain the circle further on. This is what our ingenious friend was used to do at ‘checks’ in our ‘paper-chases’ at school, and it comes quite natural to him. He will even recognise his bearings by the sand, which runs in a pretty fixed direction, owing to the prevalence of a particular wind; by the wind itself, if it happen to be blowing; or by the stars—although they are the most difficult guides of all.

Again, it is probable intense thirst will soon make itself felt. I should myself long for hock and soda-water, and vainly regret that I ever left my club in Pall Mall; but our solitary friend indulges in no such idle repinings, but steadily watches the evening flight of birds, which his experience of natural history tells him are sure guides to where water is. If a shower falls, while I stand with my mouth open catching but a teaspoonful, my born Robinson Crusoe strips his clothes off, and makes a reservoir of *them*; and, moreover, he knows that even to stand stripped in a shower of rain—a thing which mere conventional terror of the police would never suffer *me* to do—is itself a great satisfier of thirst. Then for eating: chops and potatoes, of course, are unprocurable; but one’s sandals, or skin-clothing, are not to be despised when nicely browned. To cook them, however, it is absolutely necessary to procure a light; and here comes in my gentleman of the glow-worms. The ‘common’ way (not that *I* should ever think of it) is, it seems, to put a quarter of a charge of powder into one’s gun, and above it, quite loosely, a quantity of tinder. But if one has no gun! Well, then, my Dazzler reflects that the object-glass of his telescope is itself a *burning* glass, and only requires to be unscrewed for use; even his watch-glass, filled with water, will serve the same purpose; nay, the crystalline lens of a dead animal’s eye has lit a fire, and saved a life ere now! (I think I see myself extracting a dead animal’s eye, with the faintest hope of producing such a result!) When that preliminary is accomplished, it is easy for him (but not for everybody) to kindle a spark into a flame by blowing.

Suppose, then, our ingenious friend has eaten and drunk and warmed himself, how does he procure himself a bed? In the desert, there is not much choice of situation; but anywhere else, I know what *I* should do. I should look out for a tree, and, in default of a spring-mattress, make myself as much at home, under its protection, as I could.

But the man I despised in my youth does no such foolish thing. He knows that, as soon as he lies down, the tree will be worthless as a screen ; it is a roof, but not a wall. What he wants is 'a dense low screen, perfectly wind-tight, as high up as the knee above the ground.' For this purpose, he turns up a broad sod, seven feet long by two feet wide ; and if he can succeed in propping it up on its edge, is a happy man and a householder. A great traveller, who ought to have been born in the Druidical era, and taught all our countrymen the art of sleeping, remarks of this particular kind of bivouac : 'It is a great comfort to have scraped a little hollow in the ground, just where the hip-bone would otherwise press.' But this man is a Sybarite. Let us rather listen to a more severe adviser, who never lets go his gun. Always, says he, 'if you would be safe as well as luxurious, sleep with your rifle between your legs. The butt rests on the arm, and serves as a pillow for the head ; the muzzle points between the knees, and the arms encircle the lock and breech, so that you have a smooth pillow, and are prepared to start up armed at a moment's notice.' I should think one was also rather liable to shoot *one's self*. But what an unctuousness there is in this gentleman's style ! 'A smooth pillow,' and 'one's arms encircling'—the lock of a rifle !

However, all honour to these brave and ingenious men ; for it is seldom, indeed, that their talents meet with any credit, having such little scope in these times for their exercise. Upon the prairie and in the solitary forest, they are kings of men, but in the civilised world their peculiar virtues are useless, and therefore unrecognised. One never finds out—here at home—the excellence that is in them, except, perhaps, at some picnic-party, where the corkscrew, as usual, being left behind, they astonish the company by extracting corks with a silk handkerchief—really a most wonderful performance. At the conventional dinner-table, they are dummies, and do not distinguish themselves in any way, save at dessert, when they amuse the children by cutting pigs in the most ingenious and (to me) imitable manner out of orange-peel. But folks have done that before. For that, as for all other arts and sciences, they have been born *After their Time*.

WHAT IS 'A LITTLE?'

IN one of the scientific periodicals, a correspondent, embarrassed by the instructions for preparing a certain experiment, and for adding 'a little' of some particular chemical substance to a solution, asked the editor : 'How much is "a little"?' It was a good question ; for there is often too much vagueness in this kind of language, although in most cases it is inferred that an experimenter knows sufficient of his subject to keep clear of any very grave miscalculation. The question is, moreover, useful in another way, drawing our attention to the minuteness of some of the operations of nature, and to the increasing power of ingenious men to measure the degree of that minuteness. We know that gold, for instance, may be beaten into leaves, of which two hundred thousand would go to make up an inch in thickness ; that a slip of this leaf, if it could be cut one-hundredth of an inch wide, and then one-hundredth of this slip in length,

would still be visible ; and thus we should render visible one-two-hundred-millionth of a cubic inch of gold.

All the naturalists who are familiar with the microscope, and its teachings in regard to organised structure, claim to know better than the rest of us what is that wonderful thing 'a little.' The white cliffs of Albion, that poets and tourists say so much about, and which girt our island so remarkably on the south-east, are composed of chalk, which runs inland through many counties ; and the microscope tells us that this chalk is composed almost wholly of shells and corals. The waters which sweep round from Margate to Folkestone are whitened with the remains of these shells and corals ; and our ceilings are whitewashed—nay, if common report is to be believed, our London milk is whitened also—by this agency. Certain little tiny beings called *Diatomaceæ*, which zoologists and botanists are quarrelling about (each claiming them as belonging to *their* department of science), are of marine origin, and formed chiefly of silica. Of these creatures, Dr Hooker says : 'The waters, and even the ice of the whole Antarctic Ocean, between the parallels of 60° and 80°, abound in them in such countless myriads, that they everywhere stain the surface of a pale ochreous brown colour ; and they are gradually producing a submarine deposit or bank of vast dimensions, which flanks the whole length of Victoria Barrier (a glacier of ice some four hundred miles in length) ; and the deposit occupies an area four hundred miles long by a hundred-and-twenty broad. All the soundings in this deposit—and the lead sometimes sank two feet in it—brought up scarcely anything but diatomaceæ.' The reader will, of course, understand that these little creatures are mere atoms of mud or dust, until examined very closely. Dr Rymer Jones tells us that, a few years ago, the inhabitants of a certain district in Sweden, possessing but a scanty stock of corn, were in the habit of mixing with their meal a portion of the earth of the district, to supply the deficiency, and that this earth was found to be nutritive. Now, it has long been an acknowledged fact, that animal life cannot be sustained by inorganic matter ; but how, then, in this case, could such be employed as nutriment ? Many microscopes were speedily directed to this inquiry ; and on examination, to the astonishment of an admiring world, this earth was found to consist entirely of shells of microscopic creatures ; shells as perfect in their construction as they were varied in their beauty. Even particles which cannot be seen at all by the naked eye, are sometimes found, on examination, to be beautifully organised plants or animals, as complete in their minuteness as a universe is in its vastness.

In matters of weight, 'a little' becomes very little indeed when weighed in the exquisite balances now constructed ; or rather, what is to *us* a little, is to a scientific man a notably large quantity. A balance made by Ramsden for the Royal Society 'turned' with one-thousandth of a grain in the scale ; or, as the apparatus weighed ten pounds altogether, with about a ten-millionth of its weight. When the national standard bushel was weighed and measured some years ago, a balance, with 250 pounds (a vessel filled with water) in one scale, and equivalent weights in the other, was affected in a measurable degree by the addition of one

single grain to either side. One of the most curious circumstances connected with minute weighing was that relating to the 'light-sovereign' excitement, about twenty years ago. The Bank was authorised to reject all sovereigns weighing less than 122½ grains each. This was right enough; but what angered the public was, that sovereigns issued at one counter were rejected at another. The Bank did not intend anything unfair; it weighed all the eight million sovereigns in its vaults, singly, and in the best balances, rejecting those below a certain weight as 'light.' Yet the accepted coins were not all really equal in weight. Minute differences in the weights employed, and in the even suspension of the scales; currents of air acting unequally upon the scale-pans; a gradual diminution of the weight of one scale-pan by the act of placing and displacing the coins to be weighed, by which the equipoise was deranged; the striking of the scale-pans upon the counters; differences in the judgment and perceptive powers of the weighers; the short time which could be allowed for each operation; the failing of eyesight, the flagging of attention, and the sleepiness produced by the monotony of the employment; differences in the rate of vibration of the beam; defects of principle in the construction of the scales, difficult to obviate without destroying their simplicity, and marring their general usefulness—all these contingencies affected the accuracy of the weighing. Under the pressure of this difficulty, Mr William Cotton, governor of the Bank of England, set his wits to work, and invented a most beautiful automatic gold-weighing machine. It consists externally of a square brass box, with a hopper or open funnel at the top to receive the sovereigns to be weighed; the hopper descends at an angle of 45 degrees, and will hold five hundred sovereigns at once. In front of the box are two small apertures, connected with two receivers, one for light sovereigns, and the other for those of full weight. Inside the box is a beam or balance, with a small brass platform exquisitely poised. Around and near the balance are delicate little pieces of mechanism, which we should despair of describing with lucidity; but the general action may be made intelligible. The hopper being filled with sovereigns, the lowermost is shifted and brought by means of a slide along a channel just large enough for a sovereign of proper standard gold to pass, but not large enough to admit a counterfeit.* The sovereign then escapes from forceps which have temporarily held it, and becomes balanced on the little platform. If the sovereign be of the proper weight, the platform on which it rests remains in the lowest position; and a small lever turns round and dexterously pushes it off the platform into a receptacle prepared for it. If the sovereign be ever so little below the proper weight, the platform does not sink; and another lever, coming from a different quarter, swings round, and pushes it into another receptacle. So exquisitely are the parts adjusted, that the balance would, if necessary, measure the *ten-thousandth part of a grain!* No mental labour, no racking of the brain, no fatigue of eyesight, no delicacy of perception, is involved; the Bank clerk has only to grind away, by turning a small handle,

and the machine does all the weighing by its own automatic action. If he will feed the hopper with sovereigns, the machine will weigh thirty-three of them in a minute. And such weighing! Let the Master of the Mint determine what the proper weight of a sovereign shall be; and this machine will detect 'light gold' with the most inexorable rigour. The Bank saves many hundred pounds a year by the use of these machines, in the saving of wages paid to those whose duty consisted in weighing the coins on the old system. Every sovereign that we receive at the Bank of England, whether old or new, is weighed by the machine—nay, measured as well as weighed—before it is handed to us; and it is indeed 'a little' that would escape the vigilant scrutiny of the machine. Beautiful as this machine of Mr Cotton's is, there is something even more surprising in that which Baron Segnier has invented for the French government; seeing that the latter separates the gold coins into *three* groups, according as they are exact weight, a little over weight, or a little under weight.

Some of the modes of separating substances into minute portions in the liquid form, enable us to see with the eye smaller atoms or items than are visible in the solid form. There are, for instance, certain intense colouring substances, a single drop of which would give a perceptible tint to a gallon of water; and as a millionth part of a drop of this gallon can be rendered visible by a microscope, the divided state of the colouring agent becomes strikingly manifest.

There is one living mechanician, mechanical engineer, or tool-maker, who, on the united testimony of all Europe, stands at the head of those who can measure 'a little' by purely mechanical means. This is Mr Whitworth of Manchester, known to Volunteers as the inventor of the best of rifles, and to artillerymen as the inventor of cannon which, at least, run a very close race indeed with the Armstrong guns. The wonderful machines called in the trade 'engine-tools,' which Mr Whitworth has introduced—such as planing-machines, screw-cutting machines, drilling-machines, and the like, without which steam-engines and other elaborate machines could not have become what they now are—we have nought to do with here; but it is worth noting that Mr Whitworth lays down two achievements as being those whereupon the excellence of all machines mainly depends—namely, *how to produce a flat surface*, and *how to measure small distances and quantities accurately*. The plain flat surfaces of iron or steel which used to satisfy engineers a few years ago, would now be regarded as alternations of ridges, grooves, lumps, and holes; while the thicknesses of wires, plates, and sheets, which could once be measured to the hundredth of an inch or so, can now be measured by— But let us explain this matter a little.

When we turn a screw once round, in a nut or hole fitted to receive it, we at the same time push it forward to a distance equal to one thread of the screw; consequently, if the screw be turned only one-tenth round, it advances only one-tenth of the distance between one thread and another; consequently, again, if there were a hundred threads to the inch, and the screw were turned only one-hundredth part of a circumference, it would advance only one ten-thousandth part of an inch forward. All this is well known to persons accustomed to tools and

* The double test in all these matters is this: if a bad sovereign is the same *weight* as a good one, it is *too large*; if it is the same *size*, it is *too light*—because standard gold is heavier than any metal likely to be used as a substitute.

machinery ; but Mr Whitworth's merit consists in shewing how to attain the actual results in a degree hardly conceivable. A few years ago, he contrived an apparatus which would detect the difference between the length of two bars, even if it were so minute as *one-millionth part of an inch!* There was a screw with ten threads to an inch ; there was a tangent-screw wheel with 400 teeth in its circumference, and a graduated circle with 250 divisions ; these parts were so connected that a movement equal to one division of the circle was equal to $10 \times 400 \times 250 = 1,000,000$ —that is, equal to an advance of the screw through a space of only one-millionth of an inch. This micrometer was placed at one end of a frame, on which the bar to be measured was temporarily placed. When a small piece of metal, with its opposite surfaces parallel, and exquisitely true, is placed between the bar and the micrometer, the latter is screwed up until the small piece of metal (called the *contact-piece*) is just nipped and held between them ; then, if the screw be brought back merely one-millionth of an inch, the contact-piece is loosened, and falls. Although the eye does not detect it, the machine does veritably measure this infinitesimal quantity. As Sir Emerson Tennent says, in his *Story of the Guns* : 'So nice is the adjustment, that, in using it, an inch of steel can be held to be an inch only so long as the thermometer stands at 62° Fahrenheit, the slightest excess of temperature producing an appreciable elongation. And the standard yard, a square bar of steel, when placed in the machine, is so expanded by the slightest touch of the finger, as to shew an appreciable lengthening even under the influence of the infinitesimal amount of heat thus imparted !' Mr Whitworth, like other inventors, earns more honour than profit by such exquisite contrivances as these ; but his profit begins when he applies the same principles in his workshop to produce articles in general demand. The result is seen in many ways. Some years ago, there was a difficulty in working metals to one-twentieth of an inch ; but the one-thousandth of an inch is now worked as accurately as the one-twentieth was then. In making the exquisite details of the Whitworth rifle, or in shaping and adjusting the separate pieces, the workmen have come to regard the *ten-thousandth part of an inch* (one-hundredth part of one-hundredth of an inch) as a quantity within their cognizance, and on which their credit as good workmen may depend. In the course of his elaborate experiments on rifling, hexagonal bores, conoidal bullets, and so forth, Mr Whitworth made a cylinder 0.5770 inches internal diameter, a rod 0.5770 inches thick, and another rod 0.5769 inches thick ; the one rod fitted tightly into the cylinder when both were clean and dry ; the other rod passed quite loosely into it ; and yet the two rods differed in thickness only by the ten-thousandth part of an inch. In short, 'a little,' to the last generation, would, by our present mechanicians, be easily divided into a hundred parts.

To produce minute results, instead of merely measuring them when produced by others, is the purpose of many beautiful contrivances. Photography is now one of the agents for effecting this. There are little photographic pictures, not larger than a pin's head, containing multitudes of portraits of distinguished persons ; a focalising apparatus produced them, and a microscope is necessary to render them visible.

All City men know that Messrs Masterman and Peters are among our great bankers ; but it is not given to all City men to know that this same Mr Peters is the inventor of one of the most beautiful micrographical machines ever yet constructed. Possibly a million pair of eyes just glanced at it as they traversed the Northern Gallery at the International Exhibition in 1862 ; but the glance told little, except to those who were previously somewhat versed in the subject. More attractive were the wonderful bits of writing on glass which had been effected by the machine, and which could only be rendered visible by the aid of powerful microscopes. Mr Peters, as an amateur man of science, invented the machine, and some time afterwards presented it to the Microscopical Society, by whom it was exhibited at the great International gathering. Suppose that a metal bar is suspended vertically, by a fulcrum or point exactly in the middle ; if the bar is swung to and fro, the top will describe a curve exactly like, in size and form, that described by the lower end, but opposite in direction. If the lower end is twice as far distant from the fulcrum as the upper, and if the bar be swung to and fro, the lower end will describe a curve or arc just twice as long as that described by the upper, though similar in shape. If, on the other hand, the lower end of the bar be nearer to the fulcrum than the upper ; and if the ratio of distances be (say) ten to one, then the upper end will describe an arc ten times as large as the lower, though of course reversed in direction. And so on in any other ratio. Now, let there be a blunt tracer at one end of the bar, and a pencil at the other ; if we write, or draw, or trace any figure with the tracer, the pencil may be made to copy the figure on a piece of paper—enlarged if the tracer be nearer to the fulcrum than the pencil, diminished if otherwise. Here we have the first germ of Mr Peters's micrograph ; a writing in moderately-sized characters, reproduced in smaller dimensions by this kind of pantograph. In the first machine which he made, the fulcrum was a hundred and twenty-five times nearer to one end of the bar than to the other ; and the pencil-copy was to the tracing in the ratio of 1 to 125 in size. But notable as was this power of diminution, Mr Peters hit upon an expedient that enabled him to eclipse it in an astonishing degree. Instead of causing the short arm of his bar or lever to carry a pencil or graver, he caused it to move the *long* arm of another but much smaller lever ; thus obtaining the product of the two diminutions multiplied into each other, instead of the diminution due to a simple lever. In his large lever, he made the fulcrum 125 times nearer to the short than to the long end ; in his smaller, the ratio was 50 to 1 ; and as the short arm of the first acted upon the long arm of the second, the two ratios were multiplied, insomuch that the copy-writing was 6250 times smaller than the original tracing. Suppose, for example, that the tracer ruled parallel lines one-tenth of an inch apart ; then the pencil would rule lines $\frac{1}{6250}$ th of an inch apart ; and any writing, drawing, or device would be reduced in similar ratio. The next achievement of Mr Peters was so to construct the exquisite details of his machine that he could vary the power of diminution at pleasure, from a ratio of 1 to 110 up to a ratio of 1 to 6250. Considering that no kind of pencil could draw such minutely approximate lines on paper,

he employed diamond to scratch on glass. The bits of diamond called 'turned points' are found better for this purpose than 'splinters.' The long end of the lever, which is downwards, carries a tracer, with which any design or writing is traced. The upper end carries a small piece of glass, carefully adjusted; over the glass is mounted a diamond pointing downwards, which remains stationary while the glass moves under it. Delicate mechanism is connected with the diamond, by means of which it may be raised or lowered, and also pressed with greater or less force upon the glass; and so effective are these contrivances, that the thick and thin strokes of ordinary writing can be faithfully transferred to the minute copy on glass.

We cannot give a better account of the marvellous achievements of Mr Peters's machine than in the words of the President of the Microscopical Society, in his Address for the year 1862: 'The name and address of Mr Matthew Marshall, Bank of England, have been written in $\frac{1}{2,500,000}$ th of an inch—the two-and-a-half-millionth part of an inch [square inch?]. The Lord's Prayer, too, has been written, and is legible in the $\frac{1}{2,500,000}$ th of an English square inch. The measurements of one of these specimens were verified by Dr Bowerbank, with a difference of not more than one five-millionth of an inch; and that difference, small as it is, arose from his not including the prolongation of the letter *f* in the sentence "Deliver us from evil;" so that he made the area occupied by the writing less than that stated above. Some idea of the minuteness of the characters in these specimens may be obtained from the statement, that the whole Bible and Testament in writing of the same size might be placed twenty-two times on the surface of a square inch. The grounds of this startling assertion are as follows: The Bible and Testament together, in the English language, are said to contain 3,566,480 letters. The number of letters in the Lord's Prayer, as written, ending in the sentence "Deliver us from evil," is 223. Whence, as 3,566,480 divided by 223 equals 15,992, it appears that the Bible and Testament together contain the same number of letters as the Lord's Prayer written about 16,000 times. If, then, the Prayer were written in $\frac{1}{2,500,000}$ th part of an inch, the Bible and Testament in writing of the same size would be contained by one square inch; but as $\frac{1}{2,500,000}$ th of an inch is less than $\frac{1}{4}$ d part of $\frac{1}{2,500,000}$ th of an inch, it follows that the Bible and Testament in writing of that size would occupy less space than $\frac{1}{4}$ d of a square inch. In other words, the writing is so small, that in similar characters the Bible and Testament together could be written twenty-two times in the space of one English square inch.' It is hard for the uninitiated to believe all this; but when it is soberly stated by the learned President of a learned Society, and supported by detailed explanations, we must yield. It is not the diminishing power of the instrument that astonishes. Theoretically, this may be carried to any extent, for the ratio between the two arms of the lever may be anything we please, and there may be three or four levers acting one upon another, instead of merely two; insomuch that we might arrive at the thousand-millionth of an inch at last. The marvel is, that the mechanism can be so exquisitely constructed and adjusted as to make these minute movements, and that the diamond can be made actually to scratch upon a

piece of glass a whole body of sentences and paragraphs, the mere existence of which cannot be detected without the use of powerful microscopes.

MARRIED BENEATH HIM.

BY THE AUTHOR OF 'LOST SIR MASSINGBERD.'

CHAPTER XXI.—THE MORAL OF IT.

"I WILL go home and warn my mistress," said Kathleen, after a little thought; "come with me, and I will shew you the window of her chamber. She will inform the landlord of the hotel, and he will not dare but be on our side. We shall return, thank Heaven, and my dear young mistress will see her home once more."

"But if the landlord disbelieves you?" urged the engineer. "The whole story will seem impossible—a mere fiction. Dubois is rich, which goes a great way with landlords. What will you do then?"

"Nay, it is what will *you* do then?" returned Kathleen solemnly. "You alone, in that case, must be our trust. You will not desert us, for you believe in a God. Have you no friends here—not your own messmates, but others—among the Marseilles folks, I mean?"

"I have acquaintances: we foreigners," replied the young man, "find it hard to make our way to people's hearts. But I know a dozen men, Frenchmen, who, if I told them what we know—what is going on in their own town here—But that would never do; they would breed a riot."

"What of that?" cried Kathleen eagerly. "Let them burn the town down, so that I save Miss Marguerite. Look you, there is a drinking-house just opposite to our hotel. Take them there, and treat them. Here is money—or I can bring you thrice as much."

"Put up your purse, my good girl," returned the other; "I am not wealthy, but I can afford to stand treat upon such an occasion. No true Marseillaise will refuse supper and brandy. Well, I give my entertainment at the wine-shop opposite. What then?"

"Listen; I will shew you the window; watch, and if you see my face at it, bring out your friends—to look at the moon, the state of the weather, or to smoke—no matter upon what pretence. Then if you see me wave my handkerchief—thus—tell them that in their native place, in Marseille, a young girl, their own countrywoman, is being plotted against by a wicked knave, who is carrying her off to sell her. Then let the landlord, since he has been deaf to us, hear *them*; let him look to his windows, his furniture. He will soon be won over to take our part, I warrant him. And O sir, if you happen in the turmoil to come across Dubois or Barrette—they're sure to be together—will you remember what villainy they intended, and what my poor mistress has suffered?"

"Ay, that will I," cried the young man with vehemence. "I will strike once, and not lightly, for this Lily; and once, my good lass, for the shamrock of old Ireland, which is a very pretty flower too. The gendarmes will arrive to a certainty, and I shall be sent to prison; but what of that? By the bye, why has it never struck you to inform *them* in the first instance—to send for the police at once?"

"Ah no," replied Kathleen gravely. "The Palers are a bad lot entirely all the world over. Sure they're always for the rich people against us poor folks. They would let this Dubois slip through their fingers if he only greased their palms with enough golden ointment. And besides, if we applied to the Law, the whole matter must be made public, and if this can be avoided, so much the better: Miss Marguerite would die of shame. I have good hope, too, that there need not be riot after all. This Dubois is a coward, or my name is not Kathleen Maloney."

"Very well, Kathleen; I am off to invite my friends to this entertainment, since there is no time to be lost. In half an hour, you may count upon me to have collected a score of as hairbrained fellows as can be picked up in the port. Shew your face, and it will draw them out of doors; wave your handkerchief, and then woe to the windows! 'We will be revenged! Burn, kill, slay,' as I read once in a stage-play belonging to my little sister Jane."

"O sir, if you suffer for our sake, she will never forgive me, and I shall never forgive myself."

"You do not know my sister Jane," replied Charles Perling simply, "or you would know she would forgive anything. I am not sure about her countenancing a riot, indeed," soliloquised he aloud, "but I don't see any other way that promises better." Then he looked at the steam-yacht, and shook his curly Saxon locks regretfully. "I do not think I shall ever set foot upon your deck again, bonny bark. But no matter; *au revoir*, Kathleen."

"Sure, if it's a kiss you're asking for, you shall have it," answered Miss Maloney with a little sob. "And if I can remember your name, which I am but a bad hand at, you shall never be forgotten in my prayers, you broth of a boy."

The young engineer accompanied the girl to the hotel, and she pointed out to him the supper-room, which was still brilliantly illuminated.

"My mistress is there yet," said she, pointing to the shadow of a drooping head; "therefore, one of those two will be the window at which I will stand."

Charles Perling, upon his part, secured an apartment at the *café* opposite, which commanded the desired view.

Upon entering her hotel, Kathleen Maloney gave certain orders, as emanating from her master, which, although they must have evoked some surprise, were received with polite acquiescence. The servants of gentlemen travelling *en prince* are rarely disobeyed. Then going to the chamber of her mistress, she selected some articles of apparel, money, and a bonnet and shawl, and placed them in a bundle on a table that stood on the landing at the top of the stairs. After completing these arrangements, she entered the first-floor chamber, occupied by her betters, without the least hesitation or *mauvaise honte*; but it was certainly a great relief to her to find her beloved Miss Marguerite sitting there alone.

"They have gone out," observed her mistress gloomily, in answer to her look of inquiry, "and, I think, to look for you. They seemed to be alarmed at your continued absence. You appear to have quite awakened Monsieur Barbette's interest, Kathleen," added the poor girl, smiling sadly.

"Troth, and I think I shall do that before I've

done with him!" responded the other vehemently. "They're just two worthless scoundrels, the pair of them. Ah, mavourneen! my lily! my beauty! what a snare has been spread for you, baited with glittering gold! Into what a pit of infamy has your own father been unconsciously hurrying you, in spite of yourself!"

"Say nothing against my father, Kathleen," replied Marguerite calmly; "he did all for the best. You need not remind me of my degradation; it is sufficiently present to me every instant. I am a bond-slave—sold for gold."

"Yes; but not to this man, my child, but to some other. Your marriage has been a mere trap—lie. You are a slave, indeed, if you once set foot in that vessel to-morrow morning. Monsieur Dubois is a"—

"Is a what, woman?" asked the hissing tones of the secretary, who had entered in his usual noiseless fashion, and by another door.

"A kidnapper!" exclaimed Kathleen boldly, stepping backward to the window. "An emissary of a wicked prince; a disgrace to the name of man! Now I know why there has not been even a pretence of regard for this dear girl, and why you—you and the other villain never lose sight of one another. In an infamous partnership, you purchased her of her foolish though fond father."

Marguerite, speechless with anguish and terror, still made a gesture of dissent.

"There!" cried the secretary in a tone of triumph, "madame herself, you see, denies these absurd calumnies. What dreams, what inventions are these? Fortunately, here is Monsieur Dubois himself come to reassure her.—Sir, your wife's attendant has, I believe, taken leave of her senses."

"Certainly, to look at Kathleen, as she stood, with fiery eyes and crimson cheeks, denouncing her master and his friend, this did not seem an unlikely supposition. Marguerite gazed on her with yearning indeed, but with distrust—with a sort of affectionate pity. "If she be mad," said she, "it is no wonder; and as for me, O Heaven! I would that I could be mad also."

"Nay, mistress, darling mistress, do not *you* turn from me, or mad indeed I shall go. I tell you these men are kidnappers. If I say false, let them send for the master of the hotel; let us hear what he has to say to wretches who—Stand off, accursed thief, or I shall save the hangman trouble!"

Dubois had made a step forward as if to seize her; but she snatched up a knife from the supper-table, and he fell back before its shining point, with his lips as white as ashes.

"It is quite impossible, madame," stammered he, "to pay any attention to this woman's ravings. What will the *maître d'hôtel*—a most respectable person doubtless—think of us, who come here accompanied by such an attendant! She has been drinking at the *café* opposite."

"The *café* opposite! How little he knew what hope he awakened by those words. They must be there by this time surely—some of them at least. She threw the sash up with one hand, still menacing Dubois with the knife in the other.

"If you call aloud," said the secretary, producing a small pistol from his breast-pocket, "if you utter a sound that can be heard in the street, the moment in which you do so will be your last."

"And do you think that I fear death like this trembling coward here!" replied Kathleen scornfully. "It is for him and you, for whom hell gapes, to fear; but not for me. Look forth—back, on your lives!—not from this window, but the other—do you see those men there?—ten, eleven, twelve—and there are more to come. They are there for a purpose. See how they look up this way! They know what is doing here; they have sworn to prevent it. If I do but move my hand, there will be such a riot here as shall be heard of far and wide, and for which your master himself will have to give account. You (she turned on Dubois like a tiger-cat whose young are threatened)—you poltroon, would you like to be torn asunder by a mob? Approach me or my mistress, either of you, by a single step, move a limb, a finger, be otherwise than as men turned into stone, and as sure as the stars are in heaven, it shall be so!"

"She leaned out of the window, still keeping her gaze upon her foes, and with a clear and distinct utterance, exclaimed: "We are coming down, friends—both of us, this instant. If we are not with you in two minutes, come and fetch us; you will know who have detained us." Then seizing the terrified Marguerite by her cold bloodless hand, she led her swiftly from the room, and pausing only to take the bundle which she had placed on the landing, descended to the hall, and bidding the porter open the door, was in the street with her precious charge, shawled and with her bonnet on, in less time than it takes to tell it.

"The carriage waits, madame," said he, "according to orders?" And at the corner of the street stood the vehicle in question, with four horses, and the postillions in their saddles.

Charles Perling was about to rush out from among his wondering companions, but Kathleen stopped him with her warning finger. It pointed towards the window of the room he had been so lately watching, and he understood her to mean that he should remain unrecognised by his foiled employers.

"See that we are not followed," cried she eagerly; "that is all that is necessary. And may God bless you for your good deed this night!"

The two girls entered the carriage, the whips cracked in a very *feu de joie*, and away whirled the wheels over the stones. The birds had escaped out of the snare of the fowler, though their tender hearts were palpitating yet with the extremity of their danger.

The two travellers knew nothing of the time at which the trains started northward, so they pursued the road for several stages through the night, and in the early morning, at an intermediate station on the line, they took the train towards home—after what an experience of the world that lay beyond it!

The President of Minim Hall here folded up the manuscript from which he had been reading—at first in a more disjointed fashion than our own method of narration; but during the latter part, just as we have given it—and looked inquiringly towards his auditor.

"It is a strange, sad story, sir," observed Frederick. "Is it true?"

"It is all true, my lad. My poor sister had some little talent for weaving what she had to tell into the narrative form; and I found this statement, which I know to be a correct one from

other sources, among her papers after death. It was never intended for any other eye but her own. It seems odd enough that she should have cultivated her gift in this manner to no purpose."

"I can understand that quite easily, sir," replied the young man, thinking of an instance of the same kind very much within his own experience. "But does not the writer say what eventually became of the Lily of Lozere?"

"She died, my lad, of a broken heart," observed the Principal sadly. "She could not bear the shame of the plot that had been laid for her, or (what is more likely) the degradation which she saw her father felt upon her account. We can easily imagine what was said by the vulgar and malicious, and how those who envied the count's apparent good-fortune, enjoyed the disgraceful failure of his hopes. He must have known, too, that his own ambition and desire of self-aggrandisement had brought this evil upon his house: if he had not made such a public boast of his daughter's beauty in Paris, the wicked scheme of Monsieur Dubois would never have been concocted. His days were imbibed by self-reproach as well as by wounded pride; the home at Lozere was not the old home. The Lily languished and died, nor did the faithful Kathleen long survive her."

"And was no effort made, sir, to punish that pair of scoundrels?" exclaimed Frederick indignantly. "Was it shewn that the Sultan had any complicity in the infamy?"

"I am afraid it was," returned the Principal gravely. "The Count at least always affirmed that it was. The Turkish ambassador had himself spoken highly of Dubois to the proprietor of the Château Florac. Lamotte would have moved heaven and earth to gain redress—vengeance. He appealed to the king himself in the matter; but I know not what steps were taken. It was not thought politic that France and the Sublime Porte should have a quarrel at that time, I believe. At all events, the Count cannot now hear the name of Louis Philippe mentioned without an execration; and he went into voluntary exile from his native country, disdaining, as he said, to live under such a truckling prince."

"I see it all now, sir," exclaimed Frederick suddenly: "Count Lamotte is Monsieur de Lernay. I remember the scowl that crossed his face when I happened, upon the first night I met him here, to speak of Louis Philippe. I remember how you trod upon my foot when I mentioned Constantinople."

"You are right," returned the Principal quietly. "But I did not tell you this history merely to warn you of what was dangerous ground; that would be no sufficient excuse for such a breach of confidence. I told you of this disgrace that has happened to the De Lernays, in order that you may not think a daughter of that house immeasurably beyond you, and out of your reach, as you have doubtless deemed her to be. Any great alliance, to which her birth and beauty well entitle her, has been rendered impossible to Eugenie, and her father is not likely a second time to be too ambitious in his choice of a son-in-law."

The Principal rose like one who has concluded his peroration, and does not wish to mar it by more words.

"Really, sir," stammered Frederick, perceiving that some reply was expected of him, "I scarcely

see how the circumstance you speak of can concern *me* ; but I thank you, most unfeignedly, for the trouble you have taken upon my account. I shall, of course, accept the secret you have confided to me as a sacred trust ; it will never pass these lips, you may be sure. Nor shall I ever behold Monsieur de Lernay or his daughter, without remembering the sorrow and undeserved affront that has been put upon them, and taking care to treat them with all the more gentleness and—and—homage.'

The Principal held out his hand—and not merely the two fingers of it, which were generally offered to the undergraduate world. 'I have not expelled you this time,' said he smiling ; 'but remember (here he looked towards the door, and raised his voice) that I have been obliged to give you a most severe and lengthy reprimand, and you promise me that you will never again surreptitiously leave college, even to visit your good father.'

Frederick Galton laid his hand upon the door-handle, but discreetly forbore to turn it until the rustling of silk, which had once more made itself audible during the last few minutes, had hurriedly died away.

'I thank you very much, sir,' said he, with emotion, as he finally took leave.

'God bless you, my lad, and take you in his good keeping !' was the Principal's grave rejoinder. Then he put the faded letters reverently away into his desk, and locked it ; but his features, now he was left alone, wore a look of dissatisfaction as well as sorrow. 'I have done it for the best,' soliloquised he ; 'and yet I may have been doing harm. Perhaps nature is the best guide in these matters, after all. But what a clever fellow Morrit is ! "Gentleness" and "homage" ; that was the very thing his uncle foresaw would come of this. Poor lad, poor lad !'

CHAPTER XXII.—M. DE LERNAY'S SECOND SON-IN-LAW.

The May term at Camford being one of the pleasantest epochs of human existence to that part of our race who are undergraduates, is proportionately fleeting ; yet it merges, not into sorrow or any dull routine, such as clogs us old fellows of the work-a-day world, but—into the Long Vacation : the latter period being one of quite uninterrupted enjoyment, extending over four months at the least. Ah, youth-time, why are thy blessings thus heaped together, when more sparingly used, they might gladden one a whole life long ! Ah, golden hours, why fled you in such flocks, so that not one remains, but all about us now are leaden-winged and most unmusical ! Only a week remained of Camford festivities, and then the sacred place would become a waste, inhabited only by superannuated duns, and servants in their masters' clothing ; while the young gentlemen themselves would have 'gone down,' some home to the bosom of their admiring families ; some, under the pleasant pretence of a reading-party, into the picturesque fastnesses of their native land ; and some, abroad, to behold men and cities, and to amass private collections of pipes, of more or less originality and beauty.

There was a long discussion at Casterton, between Dr Galton and his brother-in-law, as to what should be done with Frederick during this interval. His sudden descent upon Oldborough, vehemently

reprobated by his uncle, but not inexcusable in the eyes of his father, had seriously frightened both those relatives. That the boy should spend his summer at home, within half a day's journey of the village siren, was not to be thought of. The doctor entertained a very ill opinion of foreign countries, as a lounge for youth ; and the curate had a similar distrust of reading-parties, at the Lakes, or elsewhere. 'Even mathematical men,' said he, 'have been known to fall in love upon such expeditions, wherein, indeed, there is commonly little else to do.' It is most important that Frederick should have plenty to occupy his mind ; his idleness is Miss Perling's opportunity, you may depend upon that. Now, what do you say to his passing the Long Vacation in town ?'

'In London !' exclaimed the good doctor. 'What ! my boy in London, and all alone ? Where is he to lodge ? Who is to look after him ? The temptations of town, my dear Robert, are very great ; and although I have done my very best to instil into his mind good resolutions, and so forth, yet—'

'Well,' interrupted the curate testily, 'I confess I am not afraid of the temptations. The lad has a virtuous attachment, you see (the doctor winced), and that will probably prove his safeguard ; and if it doesn't, why, the attachment cannot be very strong, so that there is some comfort in either case. Moreover, I understand, from Hermann, that the De Lernays are going to town for the season. Our impressionable Frederick is not without a *penchant* for this Miss Eugenie, it seems. If you put a mopstick into petticoats, and let it wear a becoming cap, I believe the lad would fall down and worship it.'

'A Frenchwoman and a Catholic,' sighed the poor doctor, without paying any attention to the curate's last remark. 'How very unfortunate our dear Frederick has been in his early objects of devotion !'

'Very,' returned Mr Morrit drily ; 'but he is at least improving. Miss de Lernay is a person of good birth and education ; her father is a man of mark, and there is even a little money, I hear. But I contend that we are altogether wrong in looking upon either of these affairs so seriously. By the end of the Long Vacation, I trust he will have fallen in love with several other young women.'

'Robert, don't talk like that,' returned the doctor gravely. 'God knows I never loved any one but my mother, my sweet Ellen.'

The curate bowed his head, and was silent for a little. Any mention of his sister always moved him ; he had not only that reverence for her memory which Dr Hermann entertained for the writer of those letters he preserved so carefully, but a sacred love. Ellen Morrit had been to her brother the impersonation of all that was good in women ; whenever he thought or spoke contemptuously of the sex, he always made an exception of her in his own mind.

She had been his home companion for years ; the ornament of his bachelor cottage ; the manager of his little household ; his comforter in many troubles which he had confided to no other bosom.

To the doctor, she had been all this, and more, far more, although for a shorter time. So the two men kept silence, thinking each of the same fair young creature, who, though so long dead, was yet such a strong bond between them, that when they

thought of her, they straightway loved one another.

'William, my dear William,' said the curate, 'you and Frederick are not alike at all.'

'No, indeed,' returned the doctor simply; 'I am glad to say that is very true. He takes after her, not me. So fair, so kind; so endeared to all about him; so tender-hearted, and, I think, so pure.'

'Yes, and that is what makes his position such a dangerous one. If he were like young Meyrick—I mean, if he was more commonplace, and even somewhat vicious—we should have no such difficulties with him as these. To be the son of a genius, is, we well know, a deplorable circumstance; but to have a genius for one's own son, is very embarrassing too. To a certain extent, you must give him his head, my good friend, otherwise he'll kick himself clean out of the shafts and harness.'

'What is it you propose doing?' asked the doctor wearily; not, indeed, that the subject did not interest him, but because all his air-built castles of having his son by his side for life, out of reach of temptations, and the punishments that follow upon yielding to them, seemed already dissolved, and his house, as it were, made a second time desolate. 'What is it you would do with my boy?'

'Well, the best course, as it appears to me, in order to wean him from this unhappy attachment, is to let him have his own way as respects literature. Let his mind be exercised in the manner most agreeable to himself, and it will thereby be kept from love-sick longings. The ambition of a magazine-writer, it is true, is not a high one, but it is better than aspirations after a wheelwright's daughter. As to Frederick's being looked after in the sense you are thinking of in London, that is out of the question; but I will write to Gory—to Jonathan Johnson, I mean—by this day's post, and if there is no room for him under his own roof, he will see that he is respectably lodged. I will get him to promise that the lad shall be always welcome; I think he will do that much for me, for the sake of old times, so that there need be no excuse for Frederick's falling into loose company. Then, as for his employing himself, after his wished-for fashion, the editor of the *Porcupine* will be able to put him in the way of doing that. It is not a promising plan, I acknowledge, but I can hit on no better.'

'Then he will not come home—to Casterton—at all?' said the poor doctor sighing, as he thought of the weary time that had elapsed since the lad's departure, and the long lonely summer before him.

'Certainly not,' returned Mr Morrit distinctly; 'My dear William, that would be madness indeed.'

Upon the very last day of term, and within a week after the above conversation, Frederick Galton received the following letter:

'MY DEAR YOUNG FRIEND—I have been appointed your Mentor, so henceforth revere me accordingly. You are to come up to town for "the Long," and to be lodged in my neighbourhood—"under my eye," as your uncle calls it. This is to make a pupil of you indeed. We will cultivate literature together upon a little oatmeal, with Percival Potts. You only associate his name at present with your rejected communications, but I hope you will be

better friends on acquaintance. He is a very eminent person—for Heaven's sake, remember that, if you happen to learn it now for the first time—and really a good creature under his cloak of conceit. How I envy you, about to exchange Arcadia for Burlington Arcadia for the first time! Give old Hermann a friendly dig in the ribs, and put dear Phemy in remembrance of me by a kiss. Be sure you bring with you a Camford cheese, some brawn, and sundry sausages. These are the productions of *Alma Mater* by which she will really live, and leave behind all your Greek and Latin. Potts keeps Horace on draught here, as it were; I tell him it is not pleasant kept in wood; but nothing stops him.—Your future guide, philosopher, and friend, J. JOHNSON.'

Frederick had been already prepared for this invitation by a letter from his father, breathing the most affectionate anxiety, but without a word of complaint, or reference to his own disappointment. A tinge of sadness ran indeed through every sentence, like the water-mark in a bank-note, to eyes that scanned it carefully; but his son did not observe it. 'How kind of my dear father,' thought he, 'to let me take my own way in life, and to begin it so soon.' And he wrote a grateful answer. But he did not know how that reply was received; how the fluttering hope in the doctor's bosom, that his boy might even yet refuse to leave him, was thereby miserably quenched, and succeeded by the heartache; and how the loving eyes henceforth grew dull, having nought to make them glad, and the gray head drooped from that day. He came to know it, as so many of us learn such things, too late—too late, when Death, the Anti-christ, has touched the ear we should have soothed, with his cold hand, and said 'Be deaf.'

The young man was greatly elated by the prospect before him, and in the humour to be pleased with everybody. Meeting Meyrick in the street that day, whom he had not spoken with since that unfortunate supper-party at Meyrick's rooms, he frankly held out his hand, with a 'Come, Jack, let us part friends. I am not going back to Casterton, but shall be in London all "the Long."

'Why in London?' asked Meyrick with a mistrust quite unmistakable, but for which Frederick was at a loss to account.

'Oh, because that is where Grub Street is situated, which is where I am to live in future. How is the squire, your father? Come, let us have a chat together. Which way are you walking? It is all the same to me.'

Meyrick answered doggedly: 'Oh, I wasn't going to walk anywhere. I was going to Monsieur de Lernay's, to bid them good-bye. I go down to-morrow. When do you go down?'

This question was asked with an interest which might have seemed complimentary but for the harsh unfriendly tone.

'I leave for town the day after to-morrow,' replied Frederick; and annoyed at the way in which his advances had been received, he added rather maliciously, 'and I might just as well say good-bye to the De Lernay's now as later, so I'll come with you.'

M. de Lernay and his daughter were both at home. Frederick had not set eyes upon Eugenie since his interview with Dr Hermann, and, indeed, had purposely avoided her, lest he should give any colour to the Principal's absurd suspicion. But

he had thought of her a great deal. When we like a person for his or her own sake, and afterwards hear the particulars of their history, our interest is really more excited than if the information had preceded the acquaintance. How often had he wondered at what might be the cause of that melancholy which so often sat upon Miss de Lernay's brow. How he respected, nay, revered her, now! How it chastened her glorious beauty, as she sat there with her rounded arms about her harp, itself discoursing far from sorrowful music! It was a gay air, and M. de Lernay was accompanying it with snatches of some French song, and with harmonious fillips of his fingers, when the two young men entered the drawing-room.

'Pray, do not let us interrupt you,' said Frederick. 'It is a most charming performance.'

'And only look at his fingers!' exclaimed Meyrick, with admiration more genuine than refined. He generally spoke of M. de Lernay in the third person, and regarded him, it was evident, as a sort of intellectual acrobat, ingenious, indeed, but by no means a first-rate individual, looked upon from the 'gentlemanly' point of view. It would have been impossible, he rightly conjectured, for Mr Tregarthen, or any person connected with the great families of Downshire, to demean themselves by such grimaces, airs, and motions as accompanied the talk of the voluble Frenchman. As for understanding what he said, that was beyond Mr John Meyrick altogether. Notwithstanding this want of appreciation, M. de Lernay was habitually complaisant towards the young squire of Casterton, and upon the present occasion endeavoured, with great patience, to teach him the art of filliping the fingers to music, which, as all Jack's fingers were thumbs in the matter of clumsiness, was rather a hopeless task. In contrast to this extreme civility towards his companion, Frederick could not help remarking that the Frenchman's greeting to himself was somewhat cold and formal; perhaps what he had recently heard of the Count Lamotte had unconsciously imparted a less cordial tone to his own voice, which had been thus promptly repaid. He soon, however, forgot the circumstance in earnest conversation with Eugenie, whose welcome had been kind as ever. 'And so,' said she, after a little talk, 'you are going to London to become an author, we hear.'

'Ay, but to forget his vulgar Dulcinea also,' broke in her father laughing: 'that is in the bond as well, Mr Galton, is it not?'

If the ground had opened, and swallowed Eugenie, harp, and all before his eyes, Frederick could scarcely have been more astonished. It was at her he stared for an explanation of this unexpected rudeness, this inexplicable outrage upon the part of the polite Frenchman; but her countenance expressed as great surprise as his own—mingled, however, with sorrow, pain, and one transient flush of scornful indignation.

'Really, sir,' returned Frederick after a pause, 'I am quite at a loss to answer you. I do not know how much or how little of my private affairs has been confided to you; most improperly confided in any case, but in yours, as it seems, revealed to one who has neither discretion nor good-feeling.'

'My dear young sir,' replied M. de Lernay coolly, 'I am desolated at my mistake. I imagined that

Mr Meyrick here, being your intimate friend and near neighbour when at home, must needs be in possession of all the facts respecting your little *tendresse*.—What shall we call it?' He looked towards the young squire.

'You may call it what you like, for me,' returned that gentleman doggedly; 'for I don't know what you are talking about.'

For an instant, M. de Lernay's eyes shot forth 'Owl!' 'Pig!' but his voice did not lose its sweetness, nor his lips their smile, as he continued: 'I was referring to our friend's little love-affair at Casterton.'

'Oh, ah, the dairy-maid!' exclaimed Meyrick, laughing coarsely.

Frederick was pale with rage, his teeth ground together savagely, his fingers clutched an imaginary throat; but a voice heard by him alone was beseeching peace. 'For my sake,' it was whispering—'for my sake, Mr Galton, do not strike him. Spare him, spare me.'

'I did not know her exact profession,' pursued the Frenchman quietly; 'but I have not the least doubt she is a most respectable young woman. Even Dr Hermann, who is aware of the match, has not a word to say against her upon that score. It is through him that I came to know about it, for otherwise—here he smiled most cheerfully—I should not have supposed our young friend to have been engaged, certainly not.—My darling Eugenie, your lips are quite pale; this room is excessively hot.' He opened one of the glass doors that led into the garden; the soft June air flowed in, laden with the perfume of flowers, and the music of birds; the deep voice of a neighbouring college clock was telling the three-quarters of some sunny hour; he waited for this sound to cease ere he continued: 'You see, my dear Mr Galton, that my knowledge of this little matter was arrived at in the simplest way, however indiscreet I may have been in repeating it. It was not told me as a secret—on the contrary, the good President entreated me to do my best to dissuade you from what he considers a most imprudent marriage. But then he does not know the power and consolations of love; that is to say—I beg pardon of Madame Hermann—at least of young love; and, above all, he made the great mistake of including me—me, of all men—to belong to the same worldly school as himself. Now, unhappily (for I envy above all things your prudent calculating folks), I am the most impulsive creature; *Vive l'amour* has always been my motto. If a young man's tastes lead him to marry early—here he looked with steadiness at Mr John Meyrick—'*ma foi*, let him do it: he has my full consent. I had thought to please you, Mr Galton, by embracing your view of this affair; but I seem to have bungled the matter. I, who used to pride myself upon my tact—I protest I feel quite humiliated.'

'I do not wonder at that, Monsieur de Lernay,' observed Frederick coldly. 'I had come to say good-bye to you and yours; it will be a longer farewell than I anticipated; that is all. You have inflicted protracted pain, in the fruitless endeavour to make yourself intelligible to a vulgar nature.'

'He means *me*,' observed Mr John Meyrick naïvely; 'but he may say what he likes: hard words break no bones; let them laugh that win.' And he winked, yes, positively winked at M.

de Lernay, nodding his head at the same time in the direction of that nobleman's daughter.

Eugenie, white as alabaster, was still sitting by her harp, clutching its voiceless strings. A sculptor taking her for his model might have called her *Frozen Music*. Her eyes were looking upward, and her parted lips were moving, although in silence, like a martyr praying for strength to bear her sufferings ; or even (so passing fair she looked) for the pardon of her persecutors.

She had not seen young Meyrick's gesture, that was certain, and Frederick felt so far thankful. Perhaps she had not even heard his words.

'Miss de Lernay,' said he, 'I am deeply grieved to have been the involuntary cause of this unpleasant and wholly unexpected scene. Your father has not succeeded, I trust, in his object of degrading me in your eyes. I do not feel that I have anything to reproach myself with, or to have earned this insult in any way.' He took her hand, which was as cold and white as snow. 'Good-bye, Eugenie,' he murmured.

'Is it the English custom,' inquired M. de Lernay carelessly, 'to address young ladies who are not relatives by their Christian names ?'

'Very true,' observed Mr John Meyrick, and pointing a threatening finger towards his ancient playmate, he added : 'come, that lady's hand is mine ; so do you drop it.'

'Can this be true ?' asked Frederick with a look of unutterable pity.

But Eugenie's voice was frozen as the palm which still lay in his own.

'It is true,' returned M. de Lernay with dignity ; 'and it seemed to me but right that you should know it.'

Frederick stood for a moment astounded with this evil tidings. Then Indignation getting the upper hand of Compassion, and joining with Contempt and Hate—ay, it might be with Jealousy herself—he exclaimed with bitterness : 'I take my leave, Monsieur de Lernay, wishing you joy, sir, of this projected alliance ; but it seems to me,' he added, drawing close to the Frenchman's ear, and hissing out his words, 'that you are not more felicitous in your second son-in-law than you were in your first.'

THE EARLY NEWSPAPERS OF MODERN EUROPE.

In the year 1794, George Chalmers published his *Life of Ruddiman*. For nearly half a century, on the authority of that work, it was supposed that the earliest newspaper was *The English Mercurie*, a journal which was said to have been published by the government of Queen Elizabeth during the times of the Spanish Armada. Even when the forgery was demonstrated by Mr Thomas Watts, of the British Museum, there lingered a popular idea in England, that this country could still claim precedence in virtue of the *Weekly Newes* of 1622. The Germans, it is true, were able to shew that they possessed a genuine newspaper in 1615 ; and, from the general use of the word *Gazette* throughout Europe, it was suspected that the Italians would be able to establish a still earlier claim. Notwithstanding these facts, M. Hatin, who has written an admirable *History of the French Press*, maintained, as late as 1859, that to France belonged

the honour of originating the first newspaper which was worthy of the name, the *Gazette* of 1631. The last few years, however, have added much to our knowledge of the subject.

The publications which preceded newspapers, and which foreshadowed their creation, were of three or four kinds—they comprised news-letters, pamphlets of news, ballads of news, and perhaps historical summaries. News-letters existed, in a rudimentary form, before the invention of printing. During the Wars of the Roses, the members of the Paston family kept up a spirited correspondence. Among the letters which have been preserved, there are some which consist almost entirely of items of intelligence. It is observable, however, that these letters seem chiefly to have been written by men of business connected with the family, and not by professional news-writers. For example, Robert Reppa writes to his 'very reverend and very honourable Master John Paston' to the following effect : 'Salvete, &c. Tytngs the Duk of Orlyawnce hath made his oath upon the Sacrement and usyd it never for to bery armes ayenst Englond in the presence of the Kyng and all the Lordes except my Lord of Gloucester. Also, Freynchmen and Pykardes a gret nowmbr kome to Arfleet for to rescuyd it, and our Lordes wyth here smal puissance manly bytthe them and pytthe hem to fyte. Moreover there is ykome into Englond a knyght out of Spayne wyth a kerchell of Plesunce iwrapped about his arme, the qwyche knyght wyl renne a course wyth a sharp spere for his sovereign lady sake.' The whole letter consists of paragraphs of a similar character. It is dated All-Saints' Day, Tuesday, 1st November 1440, 19 Henry VI. Throughout the whole of the Paston correspondence, which comes down to the reign of Richard III., many such letters may be found. No doubt, the practice continued to prevail during the Tudor kings, but there are few traces of the practice till we come to the later years of Queen Elizabeth. In the Sydney Papers, we find Rowland Whyte, the postmaster, a 'notable busy man,' sending intelligence of English affairs to Sir Robert Sydney, who at that time was governor of Flushing. The profession of a news-writer was now thoroughly recognised. At first, he was engaged by a single patron to forward a letter of news as occasion offered ; presently, he forwarded the same letter in 'manifold' to a large class of clients.

Ben Jonson, in *News from the New World* (1600), describes his labours as follows : 'Factor for news for all the shires of England, I do write my thousand letters a week ordinary, sometimes one thousand two hundred, and maintain the business at some charge, both to hold up my reputation with mine own ministers in town, and my friends of correspondence in the country. I have friends of all ranks and of all religions, for which I keep an answering catalogue of despatch, wherein I have my Puritan news, my Protestant news, and my Pontifical news.' Even when printed news-sheets had been established in England, the writer continued to flourish as before. The reason is obvious. As the printer was compelled to submit his paper to the licenser, the substance of the public journals consisted of foreign intelligence. The news-writer, therefore, was as necessary as ever. In the *Staple of News*, which was licensed in 1625, Ben Jonson gives us an idea of the sources

from which the author compiled his letters. He indicates four chief fountains of intelligence—the Court, the Exchange, Westminster Hall, and Paul's; and that the ridicule may be complete, he does not forget to mention vacation-news and term-news, news of the sea, sailors', porters', and watermen's news. It is evident, from the same play, that the news-writer and the news-printer were natural foes.

Pennyboy, junior. Why, methinks, sir, if the honest common people will be abused, why should they not have that pleasure,

In the believing lies are made for them, As you in the office, making them yourselves ?

Fitton. Oh, sir ! it is the printing we oppose.

Cymbal. We not forbid that any news be made, But that it be printed ; for, when news is printed, It leaves, sir, to be news ; while 'tis but written—

Fitton. Though it be ne'er so false, it runs news still.

It is remarkable that, although the play of Jonson sufficiently proves the publication of domestic intelligence by the professional news-writers, we have no specimens earlier than the civil war. In the Harleian manuscripts, there are several letters of news written in French and English from the Hague, from Amsterdam, and even from Prague. These letters refer almost entirely to the events of the Thirty Years' War. But as the character of the news-letters written in London must have remained much the same throughout the time of the Stuarts, we may perhaps attain a general conception of their contents, by indicating the topics of a news-letter, preserved amongst the Sloane manuscripts, and dated February 18, 1687. The writer begins by announcing that the mayor and aldermen of Rochester had brought up and made a voluntary concession of their charter to the king, who was graciously pleased to return it to them back, at the same time intimating that they must make 'choice of such members of parliament as shall answer his royal ends.' The writer goes on to state, that the camp will open at Blackheath in the middle of June ; that the Duke of Grafton is said to have arrived on the coast, having been detained at sea by contrary winds ; that Charles Mountague, Esq., the reputed author of the *City and Country Mouse*, is said to be married this week to the Countess of Manchester ; that Lady Soames, widow of the late ambassador at Constantinople, died at Paris on the 17th instant ; that the States-general will not allow the English regiments to return from Holland ; that Mr Bonython, steward of the Westminster court, has been displaced in favour of Mr Owen ; that Sir Thomas Hanmer was buried last night in the Temple Church, and Pargiter, the goldsmith, in St Dunstan's-in-the-West ; that the Duke of Berwick goes to Northampton to take possession of the Earl of Oxford's regiment ; that Walter Poulter has been tried at Guildhall, and found guilty of perjury ; and that his majesty has heard the claim of Lord Purbeck to the earldom of Buckingham, but has taken time to consider. The letter begins with the word 'Sir,' but there is no signature. It is written on one side of a folio leaf, in a neat legible hand. Six years after the date of this document, the licensing act was allowed to lapse ; the freedom of the press was established ; and the trade of the news-writer was virtually gone.

Not only in England, but abroad, the practice of communicating written intelligence prevailed to a large extent. We have already spoken of letters in the French language, which were evidently written by professional men, during the Thirty Years' War, to their patrons at home and abroad ; but perhaps the most remarkable collection is to be found in the Imperial Library of Vienna. In the sixteenth century, the family of Fugger was the leading commercial house of Germany. Their head-quarters were at Augsburg ; their correspondents were scattered throughout the habitable world. By the importance of their mercantile transactions, they were brought into relation with many of the European governments, and with statesmen of various parties. The Jesuits were amongst their firmest friends. It was a consequence of this widely-extended connection, that they received letters from all the centres of trade and politics. Nor was the correspondence which poured into the central counting-house at Augsburg confined to the prices of goods, and to the details of war and diplomacy ; their agents were instructed to send the latest literary news, to discuss rare books, and to illustrate their contents by extracts. The letters which reached Augsburg appear to have been 'edited' ; and it is even said by Herr Sickel, who has written a memoir on the subject, that an ordinary or an extraordinary *Zeitung* appeared nearly every day, at the price of four kreuzers. Twenty-eight volumes of these *Zeitung* are preserved at Vienna.

No less important than the news-letters are the pamphlets of news. Very soon after the invention of printing, flying sheets were published in Germany, and by and by in other countries. Sometimes they were in the form of letters, sometimes a bald narrative ; they were often illustrated by rough wood-cuts, and at first they rarely bore the name of publisher, or the place of publication. The contents of these pamphlets were various. Most frequently, they gave an account of some battle, or some event of general importance. Thus, there were news-books which treated of the discovery of America, or the encroachments and sieges of the Turks, or the campaigns of the French in Italy. When they were of this description, they commonly bore some such title as *Relationes*, *Neue Zeitung*, *Nieuwe Tijdinghe*, *Avisos*, *New and True Tidings*. Or the news-books dealt with events nearer home—executions, floods, earthquakes, miracles, witch-stories, tales of children who had been murdered by Jews. To mention a few of the topics treated in the *Relations*, we find, as early as 1462, 'a manifesto of Diether, Archbishop of Cologne, against Adolph of Nassau.' Bearing date 7th June 1475, there is an account, written in Italian, of the siege and capture of Caifa by the Turks. In 1493, the letter of Columbus giving the first account of the discovery of America, was printed at Rome. In each of these cases, the news relates to one event alone. The next pamphlet, of which we shall quote the title in full, is remarkable as containing different items of intelligence ; and Mr Watt is inclined, on that account, to class it as a newspaper. *New Tidings. The Battle of the Turkish Emperor with Louis, King of Hungary, on the Day of the beheading of St John the Baptist, 1526. Also the Turkish Challenge sent to King Louis before the Battle. Also a Lamentable Epistle that the Hungarians have sent*

to the King of Poland since the Battle. Also some New Tidings from Poland. New Tidings of the Pope at Rome, what happened on the 27th September 1526. This is not the first instance in which several items of intelligence have been comprehended in the same news-book. Mr Watts quotes from Weller's list of *Zeitungen*, published in the sixteenth century, an instance of the date of 1521; and he also mentions a similar publication, printed in 1509, containing 'five different articles of contemporary intelligence, all separately enumerated in the title; but all, it must be owned, have some connection with one event—the quarrel of Maximilian with the Venetians.' There are several of these *New Tidings* preserved in the British Museum, some in particular ranging from 1546 to 1551, and comprising intelligence from the camp before Bengen, from Babilonia, Rome, Venice, intelligence of the capture of Placentia and Parma, of the death of the pope's son, and similar subjects. One news-book professes to be translated from Latin into German. In the Spanish Netherlands and in England, the titles are substantially the same in character as those we have quoted. One or two specimens must suffice. In the collection published by Abraham Verhoeven, at Antwerp, we have *An Account how and in what Manner John Van Olden Barneveldt was beheaded on Monday, 13th May 1619*. There is an illustration below the title, where Barneveldt is represented as kneeling, with his hands upraised in prayer, and his eyes bandaged, whilst the executioner poises his sword aloft, and men armed with battle-axe or matchlock stand around the scaffold. The English, too, seem to have been interested in the proceedings and the fate of Barneveldt, for in Dr Burney's collection of pamphlets and papers, we have *News out of Holland: concerning Barneveldt and his Fellow-prisoners, their Conspiracy against their Native Country, with the Enemies thereof*. The similarity between the publications of the London press and the Antwerp press at the beginning of the seventeenth century, is very striking. Newbery, Butter, Bourne, and Archer seem to have followed step by step the improvements of Abraham Verhoeven, till, at last, the *Weekly News* was started in imitation of the *Nieuws Tijdinghe*, or, as it is commonly cited, the *Antwerp Gazette*.

The titles hitherto quoted deal rather with political than with social and domestic topics. Leaving the *News* from Spayne, Germanie, Hungarie, or other countries, we shall mention a few pamphlets which illustrate the latter phase. In the English series, we have *A Short Rehearsall of Stukley and Mac Morice's Rebellion*. We read how in Suffolk and Essex 'it rayned wheat the space of six or seven miles'; how in Cheshire a new well has been found; how a prodigious monster has been born at Adlington, and a notorious sorcerer detected in Scotland; how in the west of England there has been a lamentable burning of Tiverton; and how at Perin, in Cornwall, a murder has been committed by a father on his own son. The Dutch news-books, too, will tell us of the great earthquake that has happened at Milan, of the disputes with the Arminians, or of the coronation of the Emperor Ferdinand at Frankfort. Later on, the Spanish and Portuguese press will contain, under the name of *Relaciones*, or *Avisos*, or *Gazettes*, pompous proclamations, accounts of discovery and conquest beyond the

seas, particulars of an auto da fé; even the ceremonies with which Prince Charles of England was escorted from Madrid, at the close of his ill-fated wooing. All these are topics which would naturally fall within the province of a newspaper; and the small, flimsy, quarto sheets of coarse paper and rude type which issued from the presses of Mainz, Nurnberg, Augsburg, Antwerp, and London, may legitimately be regarded as the forerunners of the modern press.

Ballads of news were adapted to the comprehension of the uneducated rather than of the educated classes. Many specimens may be found scattered throughout collections of early printed books in different countries. In Germany, the *Postreuter* related in doggerel verses the events of the last year. More commonly, however, the ballads commemorated a single incident. In England, for example, one specimen is entitled *A Ballad of the Queen's being with Child*. The queen was Queen Mary. Roscoe, too, mentions historical ballads in Italian, which were composed in the times of Julius II. and Leo X. Amongst the news-books of Verhoeven there are many Dutch ballads; and there are also some verses, written in French, on the recent fall of Prague. In Spain, productions of a similar character were styled *romances de ciegos*.

Historical summaries may not seem to have a close connection with the subject we are treating: but when it is noticed that such summaries were sometimes issued at intervals of half a year, and even month by month, their importance will not be underrated. In the first place, we have Michael Eytzinger's *Relationum Historicarum Pentaplus*; then a more important work, the *Mercurii Gallo-Belgici* of Michael von Isselt. These were issued from time to time in single volumes at Cologne, and they related the history of two, or three, or more years in each volume. They were written in Latin, and pretended to give an account of events that had happened in France and the Netherlands principally, but also in Spain, Italy, England, Germany, Poland, and the neighbouring countries. Several other works might be cited, but there is one periodical summary of events which corresponds more closely to the nature of a newspaper, and which must not be omitted. In the year 1590, Conrad Lauterbach, and Paul Brachfeld, a bookseller of Frankfort, published the first volume of their *Relationes Semestres*. The title of the number, which was published at the autumn fair of 1595, was as follows: *Calendarii Historici Relatio*. [The remainder of the title in German.] 'A true Description of all the principal and noteworthy Histories which have taken place in Upper and Lower Germany, also in France, Italy, England, Spain, Hungary, Croatia, Poland, Sweden, Transsylvania, Wallachia, Moldavia, Turkey, &c., between the last past Frankfort Lent-fair and the present Autumn-fair of this year 1595, gathered and drawn up from day to day, partly from personal knowledge, partly from credible writings, by Jacobus Francus, a lover of History and Truth.'

These written or printed compilations, then—news-letters, news-books, ballads of news, historical summaries—were the parent literature of the modern newspaper. They did not cease to exist when the first periodicals appeared; the professional news-writer, it is true, passed gradually away; but the pamphlet or the ballad is still to be found in

the broadsides of St Giles, and still maintains an unequal contest with the second and third editions of the penny or the halfpenny press. It remains to examine some of the earliest newspapers, which were created from the materials we have described. It will scarcely be possible to state dogmatically which was the earliest newspaper of all; the difficulty is in great measure a difficulty of definition. But even if we were agreed on this point, it must be remembered that, as many documents have come to light in recent times, so further researches on the continent, and especially in Italy, may furnish us with a new set of data, and compel us again to revise our conclusions.

Mr Watts lays it down that there are 'four classes of publications to which the term "newspaper" has been applied. 1. Accounts of individual public transactions of recent occurrence. 2. Accounts in one publication of several public transactions of recent occurrence, only connected together by having taken place about the same period, so as at one time to form the "news of the day." 3. Accounts similar to those of the second class, but issued in a numbered series. 4. Accounts similar to those of the second class, but issued not only in a numbered series, but at stated intervals.' Mr Watts would consider all these classes, with the exception of the first, rightly entitled to the name of newspapers. Most persons, however, we fancy, would be inclined to restrict the name to the fourth class, or, at all events, to the third and fourth.

We are indebted to Mr Watts for the first titles, claims of which are now to be discussed. *New Tidings out of Spain and Italy.* February 1534. This is a German pamphlet, of eight pages, of which one copy was purchased by Mr Panizzi for the British Museum, and another copy was sold two years ago amongst the reserved collection of M. Libri. It is observable that the date 'Mense Februario' is printed in a distinct type, and it is conjectured that the character of the type may indicate a monthly publication. In the next place, we have a title mentioned by Van Heusde, in his catalogue of the library in the university of Utrecht. *Certain Tidings of what has taken Place in the Month of September last past of this Current Year 1596, in Spain, Portugal, and France.* This publication, which came from the press of Cologne, has certainly a more genuine appearance than the former publication. The third claimant is written in Bohemian. *Regular News of the whole Month of September 1597* (Prague), to which there is attached a printer's note: 'So as it has been commanded by the illustrious Prince and Lord, the Lord Zbinek, Archbishop of Prague, in accordance with the express will of his imperial majesty (Rudolph II.), that certain printers should regularly print each whole month in common, and not separately.' This, at all events, has every indication of a genuine newspaper; but it is quite possible that the critical reader may enter a protest on the ground that the three works here referred to, even if genuine, are simply monthly summaries. This is only another specimen of the difficulties of definition. Are we to comprehend bi-annual and monthly publications, as well as weekly and daily publications, in the class of newspapers? If not, where should the line be drawn?

When we approach the period of the 'Thirty Years' War,' we can see our way more clearly.

There is a German *Aviso* bearing the number fourteen, and belonging to the year 1612. This is probably one of a series, but it is not so evident that it was published at stated intervals. At all events, in 1615, Egenolph Emmel published at his own expense a weekly newspaper, regularly numbered. He was imitated in the following year by Von der Birghden, who started the *Frankfurter-Oberpostamts-Zeitung*, an honoured name in the history of the German press. When we pass to the Spanish Netherlands, we find it stated that the *Nieuwe Tijdinghe* of Antwerp was commenced in 1605. There is, however, a collection of these Gazettes in the British Museum, ranging from January 1619 to June 1622. In these specimens, there is every evidence of gradual growth. The early copies vary very much in title; they are marked neither by number nor by 'signature,' but are sometimes dated. A few copies profess to be translated from the High Dutch; that is, from German. Presently we come to signs of serial publication. The sheets bear 'signatures,' in other words, they are marked by the letters of the alphabet in regular succession. The news, too, comes in from more numerous centres of intelligence. It is only on the 8th January 1621 that the papers are numbered formally; and there is this peculiarity about the numbers—the quantity of printed matter issued on a given day varied in amount; for example, on the 8th January, three sheets were issued, which are numbered 1, 2, 3; similarly, on the 15th January; but on the 18th January only two sheets appeared, which rank as 7 and 8. In all, one hundred and eighty-seven sheets seem to have been issued in the year 1621. The whole series was published by Abraham Verhoeven; was illustrated by wood-cuts, some of which are very clear and forcible, and was marked by the *imprimi poterit* of the licenser.

The first copy of the *Weekly News* which is preserved in Dr Burney's collection bears date the 23d May 1622. Nichols, in his *Literary Anecdotes*, makes reference to a *Courant, or Weekly News*, of October 9, 1621. The existence of this paper has been doubted; but, in any case, there is no reason to assert absolutely that the first English newspaper appeared for the first time on the 23d May 1622. It may be pure accident that this is the earliest copy preserved. In the month of October, we find the first traces of numbering. The copy issued on the 15th of that month is marked No. 2, and from that time the succession is regular. If we arrange Dr Burney's collection of newspapers in proper order, we shall find that the first series of the *Weekly News* comprised fifty numbers, and was published between the beginning of October 1622 and the 2d October 1623. The intervals of publication were very irregular; the editors and the titles constantly varied. The second series of the *Weekly News* reached at least forty-three numbers, and was issued between 2d October 1623 and 4th October 1624. In the following year, however, there is a marked improvement: the title is uniform; the editor bears the same name throughout; the publication is almost perfectly regular. The third series is headed *The Continuation of our Weekly News*, is printed for *Mercurius Britannicus*, and between the 30th December 1624 and the 24th May 1625, makes but a trifling error of four days. Yet the fortunes of the newspaper did not flourish.

Some fourteen or fifteen numbers only have been preserved between 1625 and 1640. We have already stated that there was a great resemblance between the *Weekly Newes* and the *Nieuwe Tijdinghe*. In either case, the form of publication was a small quarto sheet of four leaves, or eight pages. The title occupied the first page; the remaining pages were filled with foreign intelligence, which was derived from a dozen continental cities. If there was a press of news, the number of sheets issued on a given day was increased. The English publication, however, was not adorned with the wood-cuts of its Dutch prototype; nor, in the earlier part of its career, did it fall under the notice of the licenser. Possibly, at first, it was protected by its insignificance; but the small number of sheets from 1625 to 1640 which have survived, and a pathetic appeal to the 'courteous reader' in the last number of all, seem to indicate that the censorship was exerted strictly enough, when the importance of the new publication was realised. One word more in reference to printers and editors. Except in the year 1625, they were constantly changing. The chief names amongst the editors were Newbery, Bourne, Archer, Donnes, and Butter; but the greatest of these was Butter. Nathaniel Butter had been a news-writer; the transition to printing news was natural and easy. The first printed sheet to which his name is attached is dated 1611, and he is the author of that address to the 'courteous reader' in January 1640-1641 to which we have just referred.

The founder of the newspaper press in France, like Nathaniel Butter, had previously been a writer of news. Théophraste Renaudot, physician to the king, was a man of energy and originality. He started in Paris a *Bureau d'Adresse et de Rencontre*—that is, an office which supplied the place of a postal directory and of the advertisement-sheet in a modern newspaper. In this office, the buyers and sellers met, the retailers of news assembled and gossiped. Renaudot was the best informed man in Paris; he was fortunate, too, in possessing the friendship of D'Hozier the genealogist, who had a large circle of correspondents at home and abroad. The thought at first struck Renaudot to write copies of news, and distribute them among his customers; but the demand was so great, that he was soon compelled to print. Such was the origin of *La Gazette*, which appeared for the first time on the 31st May 1631, and continued without interruption down to the time of the French Revolution. Richelieu was prompt to discover the advantages of a newspaper which should represent the views of government, and frequently supplied Renaudot with information. The *Gazette* appeared once a week with uniform regularity. Its size was somewhat larger than the English or the Dutch newspaper, but the sheet consisted simply of two leaves, and the type was smaller. In character, it closely resembled its predecessors—items of intelligence from different continental cities, which were noted in the margin. The historian of the French press notices that the *Gazette* of Renaudot contains paragraphs of domestic news, but they are so few and far between, so manifestly dictated by the government, that they can scarcely be considered a characteristic feature.

Nothing has yet been said in reference to the press of Italy. The subject, indeed, is full of difficulty. Every one is aware that, in the year

1563, when Venice was at war with the Turks, the Venetian government drew up bulletins in writing of the incidents in the campaign. These bulletins were read to such as cared to pay a *gazeta*, or small coin, for the privilege of hearing them. It is stated that the written sheets were presently printed, and that a bull of Pope Gregory XIII. was directed against the new practice. This is more than doubtful; in truth, it is impossible to assign any certain date to the first printed newspaper of Italy. Such a publication existed in 1640, but how much earlier it would be rash to say. Further researches in the libraries of the Peninsula may even yet throw some light upon this question.

THE VOICE OF THE STREAM.

Thou comest with a pleasant voice, O little stream, to me,
And softly-spoken words are thine beneath the greenwood
tree.

I fain would catch their import, as I linger idly by,
And, fearless of Narcissus' fate, into thy mirror pry.

Thou hast a silent audience—the blossom and the bud,
The insects that are gamboling across thy fairy flood;
The violet tufts upon the bank, all give attentive ear;
And the brier bends down her rosy arms, as if she too
would hear.

Art thou whispering to the little birds that nestle in the
thorn,
How fair the heather bloomed upon the hills where thou
wert born;
How gladsome were thy footsteps then, how fain thou
wouldst be straying
Among the honey-bells again—is that what thou art
saying?

Art thou telling of the freeborn things that dwelt beside
thee there—
The moorcock and the ptarmigan, and the wild blue
mountain hare?
Of the gentle doe that followed thee to the rocky dell
below,
Where the feathery moss, and the golden moss, and the
gray-green lichens grow?

I linger by thee, little stream; thy voice I love to hear,
Yet lingering still—its melody grows sadder to mine ear,
And under-tones, like monodies, for ever seem to be
Not spoken to the birds and flowers, but solemnly to me.

I know not why the gathering tears I now can scarce
restrain,
But the heart confesseth sympathies the tongue cannot
explain;
And memories of other years come o'er me as a dream—
What power hadst thou to waken them? O tell me, little
stream.

All communications to be addressed to 'The Editors of *Chamber's Journal*, 47 Paternoster Row, London,' accompanied by postage-stamps, as the return of rejected contributions cannot otherwise be guaranteed. Communications should also, in every case, be accompanied by the writer's *Christian and surname in full*.

Printed and Published by W. & R. CHAMBERS, 47 Paternoster Row, LONDON, and 339 High Street, EDINBURGH. Also sold by all Booksellers.